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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference JDM/P410310WO	FOR FURTHER ACTION <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below.</small>	
International application No. PCT/GB2004/004763	International filing date (day/month/year) 12/11/2004	(Earliest) Priority Date (day/month/year) 14/11/2003
Applicant PRINTETCH LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 8 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☒ Unity of invention is lacking (see Box III).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

SECURITY PRINTING USING A DIFFRACTION GRATING

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

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Box No. IV Text of the abstract (Continuation of Item 5 of the first sheet)

There is provided an apparatus and a method of printing a diffraction grating. In particular, the present invention relates to diffraction gratings applied to a substrate(1), such as a hologram.

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A. CLASSIFICATION OF SUBJECT MATTER B41F19/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B41F B42D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 302 016 B1 (GIORI FAUSTO ET AL.) 16 October 2001 (2001-10-16) see abstract column 1, line 5 - column 4, line 62; figures 1-4	1-9
X	EP 0 440 045 A (GAO GESELLSCHAFT FÜR AUTOMATION UND ORGANISATION MBH) 7 August 1991 (1991-08-07)	1
A	see abstract column 14; figures 4,5	2-9
A	US 5 549 774 A (RICHARD G. MIEKKA ET AL.) 27 August 1996 (1996-08-27) cited in the application the whole document	1-9
-/-		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *S* document member of the same patent family

Date of the actual completion of the international search

2 December 2005

Date of mailing of the international search report

21. 12. 2005

Name and mailing address of the ISA

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Authorized officer

Greiner, E

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Interr Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 087 510 A (EDWARD F. TOKAS ET AL.) 11 February 1992 (1992-02-11) cited in the application the whole document -----	1-9
A	US 4 728 377 A (TERENCE J. GALLAGHER) 1 March 1988 (1988-03-01) cited in the application the whole document -----	1-9
A	US 4 913 858 A (RICHARD G. MIEKKA ET AL.) 3 April 1990 (1990-04-03) cited in the application the whole document -----	1-9
X	WO 02/094578 A (GIESECKE & DEVRIENT GMBH) 28 November 2002 (2002-11-28) see abstract page 2, line 1 - page 10, last line ; figures 1-3 -----	10-52
X	US 5 629 068 A (RICHARD G. MIEKKA ET AL.) 13 May 1997 (1997-05-13) see abstract column 1, line 11 - column 6, line 61; figures 1-4 -----	10-52
Y	WO 92/16378 A (AMBLEHURST LIMITED) 1 October 1992 (1992-10-01) see abstract page 11 - page 17; figures 1-9 -----	10-52
Y	GB 2 231 572 A (THE DE LA RUE COMPANY P.L.C.) 21 November 1990 (1990-11-21) see abstract page 1, line 2 - page 11, line 11 -----	10-52
Y	EP 0 253 543 A (THOMAS DE LA RUE & COMPANY LIMITED) 20 January 1988 (1988-01-20) the whole document -----	10-52

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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6302016	B1	16-10-2001	AT 226520 T	15-11-2002
			AU 747123 B2	09-05-2002
			AU 4467899 A	16-03-2000
			CA 2280646 A1	08-03-2000
			CN 1250719 A	19-04-2000
			DE 69903603 D1	28-11-2002
			DE 69903603 T2	14-08-2003
			EP 0985548 A1	15-03-2000
			JP 2000085096 A	28-03-2000
			KR 2000022968 A	25-04-2000
			RU 2214922 C2	27-10-2003
EP 0440045	A	07-08-1991	AT 136385 T	15-04-1996
			CA 2035432 A1	02-08-1991
			DE 4002979 A1	08-08-1991
			ES 2085363 T3	01-06-1996
			MT 1079 A	10-04-1992
			US 5248544 A	28-09-1993
US 5549774	A	27-08-1996	AU 4242393 A	13-12-1993
			CA 2135621 A1	25-11-1993
			DE 69329662 D1	14-12-2000
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			EP 0678074 A1	25-10-1995
			WO 9323251 A1	25-11-1993
			US 5629068 A	13-05-1997
US 5087510	A	11-02-1992	NONE	
US 4728377	A	01-03-1988	NONE	
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WO 02094578	A	28-11-2002	CA 2443546 A1	28-11-2002
			DE 10124221 A1	21-11-2002
			EP 1395439 A1	10-03-2004
US 5629068	A	13-05-1997	AU 4242393 A	13-12-1993
			CA 2135621 A1	25-11-1993
			DE 69329662 D1	14-12-2000
			DE 69329662 T2	09-08-2001
			EP 0678074 A1	25-10-1995
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			AU 659447 B2	18-05-1995
			AU 1434192 A	21-10-1992
			CA 2104389 A1	23-09-1992
			DE 69212596 D1	05-09-1996
			DE 69212596 T2	20-02-1997
			DK 576530 T3	30-12-1996
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			ES 2092677 T3	01-12-1996
			GB 2269341 A	09-02-1994
			GR 3021363 T3	31-01-1997
			GR 3035301 T3	30-04-2001
			US 5492370 A	20-02-1996

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9

Integrated printing press

2. claims: 10-52

Metallic ink in security production

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Intern ☐ Application No
PCT/GB2004/004763

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2231572	A	21-11-1990	NONE
EP 0253543	A	20-01-1988	DE 3771138 D1 08-08-1991 DK 355387 A 11-01-1988 HK 115495 A 21-07-1995

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